August 9, 2004

D.T.E. 03-8

Investigation by the Department of Telecommunications and Energy, pursuant to G.L. c. 25, § 19 and G.L. c. 25A, § 11G, of Massachusetts Electric Company and Nantucket Electric Company's 1998, 1999, and 2000 Demand-Side Management Performance Measurement Reports, and of Eastern Edison Company's 1999 Demand-Side Management Performance Measurement Report.

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I. INTRODUCTION

Massachusetts Electric Company and Nantucket Electric Company (collectively, "Company" or "MECo"), pursuant to G.L. c. 25, § 19 and c. 25A, § 11G, filed with the Department of Telecommunications and Energy ("Department") Demand-Side Management Performance Measurement Reports for the years 1998, 1999, and 2000 ("MECo Performance Reports"). In addition, Eastern Edison Company ("EECo"), now merged with the Company, filed its 1999 Performance Report ("EECo 1999 Performance Report"). See Massachusetts Electric Company, New England Power Company, and Eastern Edison Company, D.T.E. 99-47 (2000). The Performance Reports use quantitative analyses to assess energy and capacity savings resulting from the implementation of MECo's and EECo's Energy Efficiency Plans, approved by the Department in Eastern Edison Company, D.P.U./D.T.E. 97-91 (1998); Massachusetts Electric Company and Nantucket Electric Company, D.P.U./D.T.E. 97-77 (1998); Massachusetts Electric Company and Nantucket Electric Company, D.T.E. 00-65 (2001) ; and Massachusetts Electric Company and Nantucket Electric Company, D.T.E. 00-65-A (2002). The Performance Reports also include calculations of shareholder incentives based upon each year's savings. The Performance Reports were docketed as D.T.E. 03-8.[1]

On March 6, 2003, after notice duly issued, the Department conducted a public hearing and procedural conference. The Commonwealth of Massachusetts Division of Energy

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[1] The reports were initially filed in dockets D.P.U. 96-25, D.P.U./D.T.E. 97-91, D.P.U./D.T.E. 97-77, and D.T.E. 00-65. For the purpose of administrative efficiency, we are reviewing the MECo and EECo Performance Reports in this docket.

Resources ("DOER") was granted intervenor status. The evidentiary record consists of 36 exhibits.[2]

II. STANDARD OF REVIEW

The Department is required to review and approve expenditures for ratepayer-funded energy efficiency programs after ensuring that such programs were implemented in a cost-effective manner using competitive procurement processes to the maximum extent practicable. G.L. c. 25, § 19; G.L. c. 25A, § 11G. The Department has established guidelines that, among other things, set forth the manner in which the Department will review and approve ratepayer-funded energy efficiency plans in coordination with DOER, pursuant to G.L. c. 25, § 19 and G.L. c. 25A, § 11G. Order Promulgating Final Guidelines to Evaluate and Approve Energy Efficiency Programs, D.T.E. 98-100, Att. 1 ("Guidelines for the Methods and Procedures for the Evaluation and Approval of Energy Efficiency Programs") (2000) ("Guidelines"). The Guidelines apply to all distribution companies and to all municipal aggregators that file municipal energy plans for Department evaluation and approval. Guidelines at § 1.[3] The Guidelines apply to MECo's year 2000 programs. The criteria for

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[2] On its own motion, the Department moves MECo's responses to Department information requests into the record of this proceeding. The responses are marked as Exhs. DTE-1-1 through 1-26, and Exhs. DTE-2-1 through 2-3. In addition, pursuant to 220 C.M.R. § 1.10(3), the Department incorporates by reference into this proceeding, MECo's 1997 DSM Measurement Report; EECo 1999 Performance Report; and MECo's Energy Efficiency Plans and Updates for 1998, 1999, and 2000, which were filed in D.T.E. 97-91, D.T.E. 00-65, and D.T.E. 00-65-A respectively.

[3] A municipal aggregator is any municipality or group of municipalities that aggregates the electric load of interested electricity consumers within its boundaries, pursuant to

(continued…)

evaluating cost-effectiveness and shareholder incentives for MECo's 1998 and 1999 programs, and EECo's 1999 program, are based upon previously approved methods in effect at that time. See D.T.E. 97-77; D.T.E. 97-91.

Energy efficiency programs are deemed cost-effective if their benefits are equal to or greater than their costs, as expressed in present value terms. Guidelines at § 3.5. The Guidelines also specify the criteria employed by the Department to determine whether an energy efficiency program will be cost-effective. Id. at §§ 3, 4.2.1.[4] With respect to evaluations of the savings achieved by energy efficiency programs, the Guidelines provide that

> All such evaluations shall be reviewable, appropriate, and reliable, consistent with Department precedent concerning these terms. A variety of evaluation and assessment methods are appropriate, depending on the nature of the programs and markets being addressed. Reliable evaluations are sufficiently unbiased and sufficiently precise.

Id. at § 4.2.2(a); see Massachusetts Electric Company, D.P.U. 92-217-B at 4-6 (1994); Boston Edison Company, D.P.U. 96-1-CC (1996); Boston Gas Company, D.P.U. 94-15 (1995).

In addition, the Guidelines specify the method for the calculation of shareholder incentives that may result from the implementation of energy efficiency programs. Id. at § 5. Each distribution company must establish design performance levels they expect to achieve in

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[3] (…continued)
G.L. c. 164, § 134(a). Guidelines at § 2(9). Municipal energy plans are energy efficiency plans filed with the Department by municipal aggregators pursuant to G.L c. 164, § 134(b). Id. at § 2(1); see Cape Light Compact, D.T.E. 00-47-C (2001).

[4] For evaluating cost-effectiveness, the Guidelines adopted a "Total Resource Test," which includes only those program implementation benefits and costs that are directly incurred by distribution companies and program participants. Guidelines at § 3.2.

their energy efficiency plans. Id. at § 5.2. Design performance levels are expressed in levels of savings in energy, commodity and capacity, and in other measures of performance as appropriate. Id. Shareholder incentives are calculated based upon these performance levels. Id. at § 5.3.

III. MECO'S PROGRAMS AND SAVINGS

A. Residential Programs

1. Description

During the 1998-2000 period, MECo offered its customers combinations of the following residential programs: Residential Lighting; Clothes Washers; Efficient Clothes Washers; Energy Star; Energy Star Products; Energy Star Appliances; Energy Fitness; Energy Wise; Home Energy Management; Energy Crafted Home/Energy Star Homes; New Construction; Ground Source Heat Pump ("GSHP"); Energy Conservation Service ("ECS"); and Residential Conservation Service ("RCS") (Exhs. MEC-1A at Appendix I-3, Table 3; MEC-2A at Appendix I-3, Table 3; MEC-3, at Appendix 3, Table 3).[5] With respect to low-income programs, the Company stated that during the 1998-2000 period, combinations of the following were provided: Appliance Management Program ("AMP"); Residential Lighting;

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[5] MECo identified Clothes Washers, Efficient Clothes Washers, Residential Lighting, New Construction, Energy Star Appliances, Energy Star Homes, Energy Star Products, and Energy Star Lighting as market transformation programs (Exhs. MEC-1A at 15, 66; MEC-2A at 43, 51; MEC-3 at 38, 52). Market transformation programs are strategic efforts to offset market failures and to induce lasting changes that result in the adoption or penetration of energy efficient technologies and practices. D.T.E. 98-100, at 28 n. 22 (1999); Guidelines at §4.2.1(b).

Low-Income Residential Lighting; Low-Income New Construction; and Low-Income Program (Exhs. MEC-1A at 51; MEC-2A at 38; MEC-3, at 46-50, 57).

The Company stated that the Energy Wise, Appliance Management, ECS, RCS, Energy Fitness, and Low-Income programs provided participants with products and services such as energy audits, efficient light bulbs, faucet aerators and low-flow showerheads, refrigerator coil cleaning, water heater tank wraps, air sealing measures, and removal of second refrigerators (Exh. MEC-1A at 47-56). MECo explained that the Appliance Management program targeted low-income customers, some of whom also received new energy-efficient refrigerators, while the Energy Wise program targeted high-use customers (id. at 48, 51). The Company reported that the Home Energy Management program achieved load reductions with devices that cycled water heater, central air conditioner, and pool pump equipment when system loads reached higher levels (id. at 48, 52).

2. Methods for Evaluating Residential Savings

MECo evaluated its residential programs with methods including: (1) billing analyses for matched groups of participants and non-participants; (2) billing analyses of participants, adjusted for household size and usage patterns of non-participants; (3) engineering equations adjusted for end-use metering and usage patterns of non-participants; (4) appliance sales and rebate information; and (5) counts of installations in new homes, combined with engineering estimates and a baseline survey (Exh. MEC-1A at 39-57). MECo stated that its evaluations took into account the effects of free riders and spillover (id. at 24).

3. Results of Evaluation Methods

Based on the results of evaluations, MECo reported that its residential and low-income programs saved 116,849 megawatt-hours ("MWH") in 1998; 118,215 MWH in 1999; and 134,270 MWH in the year 2000 (Exhs. MEC-1A at Appendix 1-3, Table 1; MEC-2A, at Appendix 1-3, Table 1; MEC-3, at Appendix 3, Table 1). MECo reported capacity savings in the amount of 66,488 kilowatts ("KW") in 1998; 74,393 KW in 1999; and 67,665 KW in the year 2000 (Exhs. MEC-1A at Appendix 1-3, Table 1; MEC-2A, at Appendix 1-3, Table 1; MEC-3, at Appendix 3, Table 1).

The precision of a savings estimate is determined statistically as a function of the number of customers included in the analysis, i.e., the sample size and the variation in energy consumption among the sampled customers. See D.P.U. 92-217-B at 11 n.19.[6] MECo reported 48 precision levels for residential program savings estimates, ranging from 0.5 percent to 24 percent, with most precision levels below 15 percent (Exhs. MEC-1B, Study 11, at 9; Exh. MEC-2B, Study 13, at 4-5; Exh. MEC-3, Study 6, at 5, 11).[7]

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[6] For example, if the precision of a savings estimate was $\pm$ 10 percent at the 90 percent confidence level, then there would be a 90 percent probability that actual savings were within 10 percent of the estimated savings level. D.P.U. 92-217-B at 20 n.30.

[7] MECo also calculated realization rates for its residential programs. A realization rate is the ratio of the savings estimated from a sample of participants to the engineering estimates calculated for that same sample; this ratio can be used to extrapolate savings to an entire population of participants. See D.P.U. 95-6-CC at 8. For 1998, MECo's realization rates ranged from 69 percent to 121 percent while averaging 91 percent (Exh. MEC-1A at I-3-1). For 1999, MECo's realization rates ranged from 89 percent to 101 percent while averaging 98 percent (Exhs. MEC-2A at I-3-1; MEC-3, at I-3-1). For 2000, MECo reported realization rates from 94 percent to 114 percent, with an

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4. Analysis and Findings

The Department reviews an electric company's evaluations to determine whether the evaluations are reviewable, appropriate, and reliable. Guidelines at § 4.2.2. MECo's residential evaluations were clearly presented and sufficiently explained with adequate supporting documentation. Therefore, the Department finds MECo's residential evaluations to be reviewable.

The Department notes that MECo used methods for its residential evaluation such as billing analyses, end-use metering, engineering equations, and market surveys. Such methods are fully consistent with Department precedent. See D.P.U. 92-217-B at 9-16, 24-26. Therefore, the Department finds MECo's residential evaluations to be appropriate.

The reliability of an evaluation concerns whether it is sufficiently unbiased and sufficiently precise. Guidelines at § 4.2.2; D.P.U. 92-217-B at 4-6. The Department notes that MECo used appropriate evaluation methods, sampled groups of participants and non-participants, and took into account factors such as free-riders and spillover (see Exhs. MEC-1B, Studies 11, 12, 13,13; MEC 2B, Study 12; MEC-3, Study 6). Accordingly, MECo's residential evaluations controlled sufficiently for bias. In this proceeding, MECo provided evidence that the majority of its residential precision levels are below 15 percent. Given that an amount of variability is inherent in sampling, and that more precision may not be justified in light of the cost to obtain it and the precision already demonstrated, the Department

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[7] (…continued)
average of 106 percent (id.).

finds MECo's residential evaluations to be sufficiently precise.[8] Because the savings estimates for MECo's residential evaluations are sufficiently unbiased and sufficiently precise, the Department finds MECo's residential evaluations to be reliable.

Accordingly, because MECo's residential evaluations have been found to be reviewable, appropriate, and reliable, the Department accepts MECO's residential savings estimates.

B. Commercial and Industrial Programs

1. Description

During the 1998-2000 period, MECo offered combinations of the following commercial and industrial ("C&I") programs: Design 2000, Design 2000*plus*, Energy Initiative, Accelerated Application Process ("AAP"), Cooperative Interruptible Service ("CIS"), Small C&I, Operation & Maintenance ("O&M"), and New Market Transformation Initiatives (Exhs. MEC-1A at Appendix I-3, Table 3; MEC-2A at Appendix I-3, Table 3; MEC-3, at Appendix 3, Table 3).[9]

The Company stated that its Energy Initiative and Small C&I are retrofit programs, while Design 2000*plus* is a new construction program (Exh. MEC-2A at 15-36). Small C&I

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[8] The Department has directed companies to pursue savings measurement activities that maximize the level of precision of the savings estimates, but only to the extent that the marginal value of the more precise savings estimates exceeds the marginal cost of obtaining the additional precision. D.P.U. 92-217-B at 5; see Boston Edison Company, D.P.U. 95-1-CC at 49, n. 26, citing D.P.U. 90-35, at 100.

[9] MECo identified Design Lights, Design 2000, Design 2000*plus*, and New Market Transformation as market transformation programs (Exhs. MEC-2A at 59; MEC-3, at 12, 52).

focused mainly on lighting retrofits (id. at 34-36). MECo explained that the Design 2000*plus*, Energy Initiative, AAP, and O&M programs offered efficient lighting; heating, ventilation and air conditioning ("HVAC") improvements; variable speed drive ("VSDs") motors; and compressed air improvements (Exhs. MEC 2A at I-3-6 through I-3-17; DTE-1-2, Att. 1). MECo noted that its CIS program offered a monthly credit in exchange for load curtailment (Exhs. MEC-1A at 38; MEC-2A at 36; MEC-3, at 33).

2. Methods for Evaluating C&I Savings

MECo evaluated its C&I programs using site-specific engineering re-analyses; billing analysis; simple motor equations combined with measured hours of use; and meter readings of CIS customers' loads during interrupted and non-interrupted hours (Exhs. MEC-1A at 13-39; MEC-1B, Studies 1-10; MEC-2A at 12-14; MEC-2B, Studies 1-10, 14-16; MEC-3, at 9-33, Studies 1-5). MECo stated that its evaluations took into account the effects of free riders and spillover (Exh. MEC-3, Study 1, at ES-1).

With respect to site-specific engineering re-analyses, MECo stated that this method involved a number of inputs, including (1) readings from spot-Watt meters; (2) readings from long-term metering of lighting, HVAC, and VSD motors; and (3) ambient air temperature and humidity (Exhs. MEC-1A at 13-36; MEC-1B, Studies 2-9; MEC-2A at 12, 15-33; MEC-2B, Studies 2-3, 5-10; MEC-3, at 9-30, Studies 2-5). MECo stated that some site-specific engineering re-analyses also involved computerized building simulations (Exhs. MEC-1B, Studies 2-9; MEC-2B, Studies 2-3, 5-10; MEC-3, Studies 2-5).

Because savings may have occurred independent of the Company's C&I programs, the Company added a step to its C&I savings evaluations (Exhs. MEC-1A at 13-14; MEC-1B, Study 1; MEC-2A at 12, 14; MEC-2B, Studies 1, 14-16; MEC-3, at 9-11, Study 1). MECo surveyed groups of participants and non-participants to determine consumption levels in the absence of programs and estimated baseline levels of motor, compressed air system, and similar installations to determine the types of equipment that would have been installed in the absence of the Company's C&I programs (Exhs. MEC-1A at 13-14; MEC-1B, Study 1; MEC-2A at 12, 14; MEC-2B, Studies 1, 14-16; MEC-3, at 9-11, Study 1).

3. Results of Evaluation Methods

Based on the results of evaluations, MECo reported that its C&I programs saved 92,324 MWH in 1998; 91,479 MWH in 1999; and 95,572 MWH in the year 2000 (Exhs. MEC-1A at Appendix 1-3, Table 1; MEC-2A, at Appendix 1-3, Table 1; MEC-3, at Appendix 3, Table 1). MECo reported capacity savings in the amount of 52,568 KW in 1998; 19,722 KW in 1999; and 49,394 KW in the year 2000 (Exhs. MEC-1A at Appendix 1-3, Table 1; MEC-2A, at Appendix 1-3, Table 1; MEC-3, at Appendix 3, Table 1).

MECo reported 221 precision levels for C&I program savings estimates, ranging from 0.5 percent to 40.3 percent, with most precision levels below 20 percent (Exhs. MEC-1B, Study 2, at 3; Study 3, at 5; Study 4, at 6-7; MEC-2B, Study 1, at 6-10, 13-19; Study 5, at 11,14; Study 6, at 6-7; MEC-3, Study 1, at 3-9; Study 2, at 11-12; Study 3, at 5).[10]

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[10] For its 1998 C&I programs, MECo reported realization rates from 88 percent to 94 percent, averaging 91 percent (Exh. MEC-1A at I-3-1). For 1999 C&I programs,

(continued…)

4. Analysis and Findings

The Department reviews an electric company's evaluations to determine whether its evaluations are reviewable, appropriate, and reliable. Guidelines at § 4.2.2.

MECo's C&I evaluations were complete and presented clearly, with explanations of major assumptions (see Exhs. MEC-1A; MEC-2A; MEC-3). Therefore the Department finds the Company's C&I evaluations to be reviewable.

The Department has previously approved methods used by MECo's C&I evaluations such as engineering re-analyses, billing analyses, and end-use metering. See, e.g., D.P.U. 92-217-B at 10-16, 23. Further, the Department has approved the extrapolation of results from sampled sites to non-sampled sites in the population. Id. at 36-38, 47. Therefore, the Department finds MECo's C&I evaluations to be appropriate.

The reliability of an evaluation considers whether it is sufficiently unbiased and sufficiently precise. See D.P.U. 92-217-B at 4-6; Guidelines at § 4.2.2 The Department notes that MECo used appropriate methods such as end-use metering; sampling of participants and non-participants; and consideration of free riders and spillover (see Exhs. MEC-1B, Studies 1, 2, 3, 4, 10; MEC-2B, Studies 3, 4, 6; MEC-3, Study 3). Accordingly, MECo's C&I evaluations controlled sufficiently for bias. In this proceeding, MECo provided evidence that the majority of its C&I precision levels are below 20 percent. Given that an amount of

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[10] (…continued)
realization rates ranged from 96 percent to 113 percent, averaging 102 percent (Exhs. MEC-2A at I-3-1; MEC-3, at I-3-1). For 2000, such rates ranged from 94 percent to 101 percent, averaging 100 percent (id.).

variability is inherent in sampling, and that more precision may not be justified in light of the cost to obtain it and the precision already demonstrated, the Department finds MECo's C&I program savings estimates to be sufficiently precise. Because the savings estimates for MECo's C&I evaluations are sufficiently unbiased and sufficiently precise, the Department finds MECo's C&I evaluations to be reliable.

Accordingly, because MECo's C&I evaluations have been found to be reviewable, appropriate, and reliable, the Department accepts MECo's C&I savings estimates.

IV. EECO'S PROGRAMS AND SAVINGS

A. Overview

In 1999, EECo offered eight residential programs, as follows: Efficiency Services, Efficient Lighting, Energy Star Homes, Controlled Electric Water Heating, Energy Assistance, Efficient Appliances, Energy Audit, and ECS (EECo 1999 Performance Report, at 1). With respect to low-income customers, EECo's Energy Assistance program provided efficient lamps and fixtures, efficient appliances, and weatherization (id. at 10). In addition, EECo offered three C&I programs, as follows: Small/Medium C&I Retrofit, Large C&I Retrofit, and C&I Efficient Construction (id. at 1).[11]

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[11] EECo identified Efficient Lighting, Efficient Appliances, Energy Star Homes, and Commercial & Industrial Efficient Construction as market transformation programs (EECo 1999 Performance Report, at 5-18).

With respect to post-implementation evaluations, EECo stated its 1999 savings estimates relied on previous years' evaluations (id. at 3, 5, 15).[12] EECo claimed that its residential and low-income programs saved 9,484 MWH of energy and 5,780 KW of capacity in 1999, and that its 1999 C&I programs saved 25,518 MWH of energy and 8,060 KW of capacity (id. at Table S (Rev. August 2000)).

B. Analysis and Findings

The Department reviews an electric company's evaluations to determine whether the evaluations are reviewable, appropriate, and reliable. Guidelines at § 4.2.2. EECo implemented its final set of energy efficiency programs in 1999, and it is the evaluations of these programs that the Department reviews in this proceeding. The Department notes that EECo provided a sufficient explanation of its evaluations. Accordingly, the Department finds EECo's evaluations to be reviewable. EECo used methods for its evaluations such as sampling and on-site metering (see EECo 1999 Performance Report; Exh. DTE 2-3). Such methods are consistent with Department precedent. See D.P.U. 92-217-B at 9-16, 24-26. Accordingly, the Department finds EECo's evaluations to be appropriate. With respect to the reliability of EECo's evaluations, the Department notes that EECo has used appropriate evaluation methods,

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[12] An example of an evaluation performed by EECo is its Final Report-Residential Efficient Lighting Program Evaluation December 1999 ("Final Report") (Exh. DTE 2-3). The Final Report relied on sampling techniques, on-site metering, and interviews (id. at 2). Adjustments were made to account for free ridership and spillover, and EECo reported realization rates ranging from six to 55 percent (id. at 18).

and has taken into account effects such as free riders and spillover (Exh. DTE 2-3). Accordingly, the Department finds that EECo's evaluations to be reliable.

Because EECo's evaluation has been found to be reviewable, appropriate and reliable the Department accepts EECo's savings estimates.

V. COST-EFFECTIVENESS

A. Introduction

The Department is charged with determining the cost-effectiveness of an electric company's energy efficiency programs. G.L. c. 25A, § 11G; Guidelines at §§ 3, 4. First, the Department reviews the pre-implementation cost-effectiveness of an electric company's energy efficiency programs. Guidelines at §§ 3, 4. After implementation, the Department must again review these energy efficiency programs to determine their actual cost-effectiveness. G.L. c. 25A, § 11G; Guidelines at §§ 3, 4. In this proceeding, the Department reviews the post-implementation benefits and costs of MECo's and EECo's energy efficiency programs to determine their actual cost-effectiveness.

An energy efficiency program is considered to be cost-effective if its benefits are equal to or greater than its costs, in present value terms. Guidelines at § 3.5. Benefits consist of avoided energy and capacity costs, avoided transmission and distribution costs, and, beginning in the year 2000, certain cost savings such as reduced late payment charges, reduced operation and maintenance costs, and reduced consumption of water and fuels. Id. at §§ 3.3.2, 3.3.3.

The Department has reviewed the savings estimates attributable to MECo's and EECo's energy efficiency programs and found these to be acceptable (Exhs. MEC-1A, MEC-2A,

MEC-3; DTE 2-3). Savings are a key component of the Department's cost-effectiveness test because the benefits used in the benefit-cost method are derived from savings.

Costs of energy efficiency programs consist of payments to vendors for equipment and services, payments to installers, rebates to participants, verification costs, costs to plan, administer, market, and evaluate programs, shareholder incentives, and program participant costs. Id. at §§ 3.2.2, 3.2.3. In this proceeding, MECo and EECo reported the final costs attributable to their respective energy efficiency programs (Exhs. MEC-1A, MEC-2A, MEC-3; EECo 1999 Performance Report).

B. Residential Programs

MECo stated that its residential and low-income programs cost $13.5 million in 1998; $14.5 million in 1999; and $23.84 million in the year 2000 (Exhs. MEC-1A at I-3-3; MEC-2A at I-3-3; MEC-3, at I-3-3).[13] Based on its post-implementation evaluations, MECo reported present value benefits of $15.68 million for 1998; $15.06 million for 1999; and $37.8 million for 2000 (Exhs. MEC-1A at I-3-3; MEC-2A at I-3-3; MEC-3, at I-3-3). Consequently, MECo reported overall residential and low-income B/C ratios of 1.15 in 1998, 1.01 in 1999, and 1.59 in 2000 (Exhs. MEC-1A at I-3-4; MEC-2A at I-3-4; MEC-3, at I-3-4).

MECo reported that each of its residential and low-income programs achieved post-implementation B/C ratios greater than 1.00 except (1) the 1998 Energy Star Products, Energy Wise, Energy Fitness, ECS, AMP, and GSHP programs; (2) the 1999 Energy Star, Energy

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[13] Consistent with the Total Resource Test, MECo's cost figure includes $3.66 million from program participants for the year 2000 (Exh. MEC-3, at App. 3, 3-4). See Guidelines at § 3.2.

Wise, Energy Fitness, ECS, AMP, Efficient Clothes Washer, and New Construction programs; and (3) the year 2000 Energy Star and Low-Income New Construction programs (Exhs. MEC-1A at I-3-4; MEC-2A at I-3-4; MEC-3, at Appendix 3, 3-4).

EECo reported that its residential and low-income programs cost $3.42 million while providing $3.55 million in present value benefits (EECo 1999 Performance Report, at Table S).[14] EECo reported an overall residential and low-income B/C ratio of 1.04 for 1999, with all residential and low-income programs posting a B/C ratio of 1.00 or higher except: (1) Low-Income Energy Assistance; (2) Efficient Appliances; and (3) Energy Star Homes (id. at Table S (Rev. August 2000)).

C. C&I Programs

MECo stated that its C&I programs cost $30.3 million in 1998; $24.1 million in 1999; and $53.8 million in 2000 (Exhs. MEC-1A at I-3-4; MEC-2A at I-3-3; MEC-3, at I-3-4).[15] Based on its final evaluations, MECo reported present value benefits of $68.08 million for 1998; $59.5 million for 1999; and $74.24 million for the year 2000 (Exhs. MEC-1A at I-3-4; MEC-2A at I-3-4; MEC-3, at I-3-3). MECo reported post-implementation B/C ratios of 2.20

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[14] Because EECo did not calculate the present value benefits of its ECS, Residential Audit, and Controlled Electric Water Heating Program, it excluded the costs of these programs from its residential and low-income B/C ratios (EECo 1999 Performance Report, at Table S, note n).

[15] Consistent with the Total Resource Test, MECo's cost data includes $16.0 million of program participant contributions for the year 2000 (Exh. MEC-3, at Appendix 3, 3-4). See Guidelines at § 3.2.

in 1998, 2.40 in 1999, and 1.38 in 2000 (Exhs. MEC-1A at I-3-4; MEC-2A at I-3-4; MEC-3, at I-3-4).

MECo explained that each of its C&I programs produced a B/C ratio of 1.00 or greater except (1) the 1999 New Market Transformation program; and (2) the 2000 New Market Transformation program, and the 2000 O&M program (id.).

EECo stated that it spent $4.43 million on C&I programs during 1999 (Exh. MEC-4, at Table S (Rev. August 2000)). EECo reported an overall post-implementation B/C ratio of 1.60, with B/C ratios exceeding 1.00 for each C&I program (id.).

D. Analysis and Findings

The Department notes that eleven of MECo's programs failed to achieve cost-effectiveness during one or more of the years 1998-2000. Four of these programs – Energy Star, Efficient Clothes Washers, New Construction, and New Market Transformation – are market transformation programs. Three of EECo's programs failed to achieve cost-effectiveness, two of which are market transformation.

According to the Guidelines, § 4.2.1(b), program administrators may provide scenario analyses or sensitivity analyses regarding projections of market transformation program savings and cost-effectiveness. The Department encourages the use of such techniques to better specify the range of savings and cost-effectiveness levels with the understanding that such techniques may inform program administrators of the strengths and weaknesses of their market transformation programs.

Of the Company's remaining non-market-transformation programs, the 1998 and 1999 Energy Wise; the 1998 and 1999 Energy Fitness; the 1998 and 1999 ECS; the 1998 and 1999 AMP; the 1998 GSHP; the 2000 Low-Income New Construction; and 1999 O&M programs failed to achieve cost-effectiveness. In particular, four of the programs failed twice, the 2000 Low-Income New Construction program demonstrated a B/C ratio of only 0.02, and the 2000 O&M program demonstrated a B/C ratio of 0.00.

Accordingly, the Department finds MECo's non-market-transformation energy efficiency programs are cost-effective except for 1998 and 1999 Energy Wise; 1998 and 1999 Energy Fitness; 1998 and 1999 ECS; 1998 and 1999 AMP; 1998 GSHP; 2000 Low-Income New Construction; and 2000 O&M. The Department finds EECo's non-market-transformation energy efficiency programs are cost-effective except for the 1999 Low-Income Energy Assistance Program.[16]

The Department is concerned about the use of customer funds to support a program that appears unlikely to achieve the requisite cost-effectiveness given due time. The Department expects that customer-supported energy efficiency programs will most likely achieve cost-

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[16] After 2000, DTE Guidelines require distribution companies to identify specific, quantifiable, and significant benefits that accrue to low-income program participants, and to include them in the cost-effectiveness analyses of these programs. D.T.E. 98-100, at 13; DTE Guidelines at § 3.3.2(e). Unlike other customer groups, distribution companies must: (1) provide residential low-income customers "weatherization and [energy] efficiency services;" (2) implement these services "through the low-income weatherization and fuel assistance program network;" and (3) spend at least 20 percent of the energy-efficiency funds expended for residential demand-side management programs on low-income residential demand-side management and education programs. G.L. c. 25A § 11G; G.L. c. 25, § 19.

effectiveness in both pre- and post-implementation phases, and only in the rare case will a program fail to meet these tests. Otherwise, expenditures of customer funds will have too often failed to have actually provided the level of benefit necessary to justify that expenditure. The Department emphasizes that customers are not well served by expenditures of funds that fail to secure at least a commensurate level of benefits. To reiterate a point from the Guidelines, program administrators are to use cost-effectiveness evaluations to inform decisions about continued implementation of, or modifications to, a program. See Guidelines § 4.2.2(a).

The Department recognizes that market transformation programs may: (1) run for several years; (2) operate on a New England-wide basis; and (3) represent a diverse set of technologies. The Department and DOER are required to give "due emphasis" to statewide and regional market transformation programs in order to "eliminate market barriers to energy efficiency goods and services."[17] As such, DOER includes market transformation programs in its statewide energy efficiency goals. G.L. c. 25A § 11G; 225 C.M.R. § 2.3.1.

Program administrators and energy-efficiency stakeholders have, over time, gained valuable experience with respect to the design and operation of market transformation programs. The Department can benefit from this experience with respect to its complex task of determining the cost-effectiveness of such programs. Therefore the Department directs

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[17] The Department has also expressed concern that "because of the inherent and greater uncertainty concerning the results of market transformation programs, such programs should not comprise an excessive portion of the portfolio of programs contained within a particular energy efficiency plan." D.T.E. 98-100, at 17.

MECo, in its next Performance Report, to examine the interaction between the cost-effectiveness method established in the Guidelines and market transformation programs. See Guidelines at §§ 4.2.1 (b), 4.2.2 (b); 98-100 at 16-17 (2000). That examination should include, but not be limited to (1) the particular legislative and substantive goals associated with market transformation programs; (2) the framework for conducting market transformation programs as described in the Guidelines; (3) the quantitative methods for measuring cost effectiveness as described in the Guidelines; and (4) any recommendations based on MECo's examination. See Massachusetts Electric Company and Nantucket Electric Company, D.T.E. 00-65A, at 7, citing Massachusetts Electric Company, D.P.U. 90-261 (1991) at 111; Massachusetts Electric Company, D.P.U. 95-6-CC, at 14-32 (1995). At a future time, the Department plans to conduct a technical conference to further discuss the issues noted above.

VI. SHAREHOLDER INCENTIVES

MECo stated that its shareholder incentive has three parts: (1) an efficiency incentive, or a mechanism that compares the overall B/C ratio achieved by the Company's programs to a target B/C ratio; (2) a maximizing incentive, or a mechanism that compares the Company's actual MWH and KW savings to target levels of MWH and KW savings; and (3) a performance metric incentive, or a mechanism that compares the Company's market transformation achievements to specific market transformation goals (Exh. MEC-1A at I-4-1).[18]

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[18] The performance targets for MECo's 1998-2000 shareholder incentives were established in D.T.E. 97-77 and D.T.E. 00-65.

With respect to the Company's efficiency incentive, MECo reported that this comparison resulted in a total of $4,558,418 of after-tax incentive payments for the three program years (Exhs. MEC-1A at I-4-1; MEC-2A at 1-4-1; MEC-3, at App. 5, Table 1). With respect to its maximizing incentive, MECo reported that this comparison resulted in an after-tax incentive of $4,336,166 (Exhs. MEC-1A at I-4-1; MEC-2A at 1-4-1; MEC-3, at App. 5, Table 1). Finally, with respect to its performance metric incentive, MECo reported accomplishments in 81 market transformation goals resulting in an after-tax incentive of $1,918,890 (Exhs. MEC-1A at I-4-1; MEC-2A at 1-4-1; MEC-3, at App. 5, Table 1). Together, MECo reported after-tax shareholder incentives for the three program years amounting to $10,813,474 (Exhs. MEC-1A at I-4-1; MEC-2A at 1-4-1; MEC-3, at App. 5, Table 1).

EECo stated that its shareholder incentives consist of (1) payments based on the MWH savings achieved by each of five programs compared to a target level for each program; and (2) payments based on accomplishment of market transformation goals (Proposed 1999 Shareholder Incentive Mechanism and Updated Conservation and Load Management Plans, March 31, 1999, Attachment 4, at 2-3).[19] Based on these components, EECo claimed a shareholder incentive of $328,844 for the performance of its 1999 residential programs and

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[19] The five programs are as follows: Residential Efficiency Services; Energy Assistance; Small/Medium Commercial & Industrial Retrofit; Large Commercial & Industrial Retrofit; Commercial & Industrial Construction (Proposed 1999 Shareholder Incentive Mechanism and Updated Conservation and Load Management Plans, March 31, 1999, Att. 4, at 2).

$623,985 for the performance of its 1999 C&I programs (Exh. MEC-4, at App. 1, Table 4). Together, EECo's shareholder incentives amount to $952,829 (id.).

In D.T.E. 97-91, the Department approved EECo's method of calculating its shareholder incentive mechanism for 1999 energy efficiency programs. Accordingly, applying the method approved in D.T.E. 97-91 and based on our review of the record in this proceeding supporting the level of energy savings for EECo's 1999 energy efficiency programs, the Department approves EECo's request for its 1999 shareholder incentive in the amount of $952,829.

VII. ORDER

Accordingly, after due notice, hearing and consideration, it is

ORDERED: That the demand-side management savings estimates for Massachusetts Electric Company and Nantucket Electric Company for the years 1998, 1999 and 2000, are hereby approved; and it is

FURTHER ORDERED: That the 1999 demand-side management savings estimates for Eastern Edison Company are hereby approved; and it is

FURTHER ORDERED: That Massachusetts Electric Company and Nantucket Electric Company shall recover after-tax shareholder incentives associated with their demand-side management performance for the calendar years 1998, 1999, and 2000, in the amount of $10,813,474; and it is

FURTHER ORDERED: That Eastern Edison Company shall recover shareholder incentives associated with its demand-side management performance for the calendar year 1999 in the amount of $952,829; and it is

FURTHER ORDERED: That Massachusetts Electric Company and Nantucket Electric Company follow all directives in this order.

By Order of the Department,

/s/
Paul G. Afonso, Chairman

/s/
James Connelly, Commissioner

/s/
W. Robert Keating, Commissioner

/s/
Eugene J. Sullivan, Jr., Commissioner

/s/
Deirdre K. Manning, Commissioner

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).